

Docket No. MRI-102XC1
Serial No. 10/200,893

Remarks

Claims 1-30 were pending in the subject application. Claims 8-11, 13, 14, 21, 24, 25 and 28-30 have been previously withdrawn. The undersigned avers that no new matter is introduced by this amendment. Entry and consideration of the amendments presented herein is respectfully requested. Accordingly, claims 1-7, 12, 15-20, 22-23, and 26-27 are currently pending in the subject application. Favorable consideration of the pending claims is earnestly solicited.

The applicant appreciates the Examiner's acknowledgement of the applicant's election of Species III. However, the applicant disagrees with the position presented in the Office Action that "a configuration having a different rotation of $(2n+1)\pi$, which was not present in the original claims considered in the previous Office Action and therefore, the coil configuration changes to the configuration of Figure 4 represented by Species IV." In particular, original claim 8 included the limitation "wherein the at least one conductive connection member spirals approximately $n\pi$..." Amended claim 8 includes the limitation "wherein the at least one conductive connection member spirals approximately $(2n+1)\pi$...". Accordingly, as each possible value for $(2n+1)\pi$ is included in the expression $n\pi$, the subject matter of amended claim 8 was included in original claim 8.

Claims 1, 2, 4, 6, 7, 12 and 15-20 have been rejected under 35 U.S.C. §102(b) as being anticipated by Doty (U.S. Patent No. 5,929,639). The applicant respectfully traverses this grounds for rejection.

The Office Action states, at page 3, that the Doty reference "discloses a coil configuration for a magnetic resonance imaging system comprising (Figures 1-3B): a first coil covering at least a portion of a surface or volume of interest (#21); and a second coil spiraling around and covering the at least a portion of the surface or volume (#230) wherein the coil configuration is single-tuned such that the first and second coils are tuned to the same frequency (column 3, line 42-45) wherein the first coil and the second coil are substantially isolated from each other (Figure 1b, column 5, lines 39-53)." The applicant respectfully asserts that the Doty reference does not teach a second coil spiraling around and covering the at least a portion of the surface or volume. In particular, coil 230 of the Doty reference does not spiral around and cover the at least a portion of the surface or volume covered by coil 210. The layouts of coils 230 and 210 are shown in Figures 2a and 2b, respectively, of the Doty reference. Coil 230 does not spiral around and cover the at least a portion of the surface or volume covered by coil 210. In contrast, the subject invention as claimed in claims 1, 2, 4, 6, 7,

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12, and 15-20 incorporates a second coil spiraling and covering the at least a portion of the surface or volume. Furthermore, the Examiner directs the applicant's attention, at page 3 of the Office Action, to col. 3, lines 39-46 of the Doty reference for the assertion that Doty teaches "wherein the coil configuration is single-tuned such that the first and second coils are tuned to the same frequency." However, the Doty reference, at col. 3, lines 39-46, teaches "when two coils are mathematically orthogonal over all space, they have zero mutual inductance L_M ... their inductive coupling coefficient k is zero, which is defined by the following: $L_M = k\sqrt{(L_1 L_2)}$, where L_1 and L_2 are the self inductances of the respective coils." In addition, the Doty reference at col. 1, lines 11-13, teaches "an rf saddle coil for field lock having minimal mutual inductance with a second, aligned saddle coil tuned to a second frequency" (underline added for emphasis).

With respect to claim 6, the Office Action states "Doty discloses the second coil comprises: two circular conductive loops located at opposite ends of the cylindrical volume; and at least one conductive connection member connecting the two circular loops (Figure 1)" However, coil 230 of the Doty reference does not have two circular loops located at opposite ends of the cylindrical volume and at least one conductive connection member connecting the two circular loops. In fact, there are no circular loops. With respect to claim 7, the Office Action states "Doty discloses the second coil comprises two conductive connection members connecting the two circular loops (Figures 1b and 2b, #110, #120, and #210)". However, there are no circular loops in Figures 1b and 2b to connect. With respect to claim 12, the Office Action states "Doty discloses the second coil spirals in a first direction and the first coil spirals in an opposite direction, wherein the summation of the spiraling of the second coil and the spiraling of the first coil is $2n\pi$ or $n\pi$ where n is an integer (Figure 1b)." Again, coil 230 of the Doty reference does not spiral and coil 210 does not spiral either. With respect to claim 15 (applicant assumes) the Office Action states "Doty discloses the second coil spirals in a first direction and the first coil spirals in the first direction, wherein the difference in the spiraling of the second coil and the spiraling of the first coil is $n\pi$ or $2n\pi$, where n is an integer (Figure 1b)". However, coils 110 and 120 of the Doty reference do not spiral.

Therefore, the Doty reference does not teach each and every limitation of the subject invention as claimed. Accordingly, the applicant respectfully requests reconsideration and withdrawal of the rejection of claims 1, 2, 4, 6, 7, 12 and 15-20 under 35 U.S.C. §102(b).

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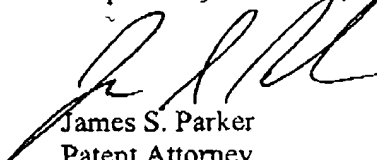
Claims 3 and 5 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Doty ('639 patent) in view of Eydelman (U.S. Patent No. 6,023,166). The applicants respectfully traverse this grounds for rejection.

As discussed above, the Doty reference does not teach or suggest a coil configuration having a first coil covering at least a portion of a surface or volume of interest and a second coil spiraling around and covering the at least a portion of the surface or volume, wherein the coil configuration is single-tuned such that the first coil and the second coil are tuned to the same frequency, and wherein the first coil and the second coil are substantially isolated from each other. The Eydelman reference does not cure this defect. Therefore, the applicant asserts that a *prima facie* case of obviousness has not been presented. Accordingly, the applicant respectfully requests reconsideration and withdrawal of the rejection of claims 3 and 5 under 35 U.S.C. § 103(a).

The Commissioner is hereby authorized to charge any fees under 37 C.F.R. § 1.17 as required by this paper to Deposit Account 19-0065.

The applicants invite the Examiner to call the undersigned if clarification is needed on any of this response, or if the Examiner believes a telephonic interview would expedite the prosecution of the subject application to completion.

Respectfully submitted,



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Attachments: Pctition and Fee for Extension of Time Under 37 CFR §1.136(a)(1) (1 page)

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